IN THE CLAIMS

Original claims 1-18 were canceled in applicant's 24 July 2002 Response (Amendment A) to the Office Action of 24 January 2002. Pursuant to applicant's phone interviews with the Examiner on 9 July and 14 July 2004, applicant has amended original claims 1-18 and submits them herein as new claims 100-117 solely and exclusively for overcoming the specific cited rejections/objections of record in the subject Office Actions of 17 March 2004, and 24 January 2002.

Applicant further resubmits herein the previous claims 19-99 originally submitted with applicant's response dated 24 July 2002 to the Office action (mailed 24 January 2002) as herein numbered 19-99.

Claims 82, 85, 87, 93-99 are identified as "currently amended" because applicant has corrected minor capitalization and grammatical therein. These claims are marked herein with strikethroughs and underlining to identify the changes made in correcting these minor deficiencies.

After entry of the above-requested new claims, claims 19-117 will be in the application.

The new claims herein submitted contain no new matter, and fall completely within the scope of the material set out in the originally filed documents.

I claim:

Claims 1-18 (canceled)

Claims 19-81, 83, 84, 86, and 88-92 (previously presented)

Claims 82, 85, 87, 93-99 (currently amended)

Claims 100-117 (new)

19. (previously presented) An apparatus for enabling multiple modes of operation among a DC power source, a DC powered device, and a DC power module, wherein said

DC power source is normally coupled to, and delivers power to, said DC powered device, said apparatus comprising:

a multi-conductor interface member electrically isolating said DC power source from said DC powered device, said multi-conductor interface member including a first plurality of conductors electrically connected with said DC power source, and a second plurality of conductors electrically connected with said DC powered device; and

a connection interface electrically coupled to said multi-conductor interface member and providing access to said DC power module, enabling selective interconnection among said DC power source, said DC powered device, and said DC power module, to effect said multiple modes of operation.

20. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a battery;

said DC power module comprises a battery charger; and

said connection interface interconnects said DC power source and said DC power module to enable said battery charger to charge said battery.

21. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power module comprises a DC power supply; and

said connection interface interconnects said DC power module and said DC powered device to enable said DC power supply to provide power to said DC powered device.

22. (previously presented) The apparatus as claimed in Claim 20, wherein:

said DC power module comprises a DC power supply; and

said connection interface interconnects said DC power module and said DC powered device to enable said DC power supply to provide power to said DC powered device simultaneously with said battery being charged by said battery charger.

23. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a battery; and

said connection interface includes a jumpered connector to interconnect said battery and said DC powered device to enable said battery to provide power to said DC powered device.

24. (previously presented) The apparatus as claimed in Claim 22, comprising a resistive element in thermal contact with at least one of said battery and said power supply, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts located at said connection interface, permitting monitoring of a change in resistance of said resistive element by an external monitoring device.

25. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a battery; and

said connection interface interconnects said DC power source and an external battery charger to enable said battery charger to charge said battery.

26. (previously presented) The apparatus as claimed in Claim 25, wherein:

said DC power module comprises a DC power supply; and

said connection interface interconnects said DC power module and said DC powered device to enable said DC power supply to provide power to said DC powered device simultaneously with said battery being charged by said battery charger.

27. (previously presented) The apparatus as claimed in Claim 19, comprising a resistive element in thermal contact with a heat source of said DC power source, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts located at said connection interface, permitting monitoring of a change in resistance of said resistive element by an external monitoring device.

28. (previously presented) The apparatus as claimed in Claim 27, wherein:

said DC power source is a "smart" battery, and said resistive element is located within said "smart" battery.

29. (previously presented) The apparatus as claimed in Claim 27, wherein:

said DC power source is a "smart" battery, and said resistive element is located within said "smart" battery in addition to an existing temperature sensor.

30. (previously presented) The apparatus as claimed in Claim 27, wherein:

said resistive element is affixed to the exterior of said DC power source.

31. (previously presented) The apparatus as claimed in Claim 19, comprising a resistive element in thermal contact with a heat source of said DC power module, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts located at said connection interface, permitting monitoring of a change in resistance of said resistive element by an external monitoring device.

32. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC power module is capable of transferring data, having access to data lines for communicating with said "smart" battery; and

said connection interface interconnects said "smart" battery data lines with DC power module data lines.

33. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC powered device comprises an internal data processor;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device data processor;

said DC power module is capable of transferring data, having access to said data lines for communicating with said DC powered device; and

said connection interface interconnects said DC powered device data lines with DC power module data lines.

34. (previously presented) The apparatus as claimed in Claim 33, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC powered device comprises an internal processor capable of transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device;

said DC power module comprises a battery charger capable of transferring data, having access to data lines of said first and second plurality of conductors for communicating with said DC powered device and said "smart' battery; and

said connection interface interconnects said battery charger data lines with both "smart" battery data lines and DC powered device data lines to enable said battery charger to communicate with said DC powered device and said "smart" battery.

35. (previously presented) The apparatus as claimed in Claim 33, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC powered device comprises an internal processor capable of transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device;

said DC power module comprises a power supply capable of transferring data, having access to data lines of said first and second plurality of conductors for communicating with said DC powered device and said "smart' battery; and

said connection interface interconnects said DC power supply data lines with both "smart" battery data lines and DC powered device data lines to enable said power supply charger to communicate with said DC powered device and said "smart" battery.

36. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC powered device comprises an internal data processor capable of transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device; and

said connection interface includes a jumper connector to interconnect said "smart" battery data lines with DC powered device processor data lines.

37. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC powered device comprises a processor capable of transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device;

said DC power module comprises a power supply capable of transferring data, having access to data lines of said second plurality of conductors for communicating with said DC powered device; and

said connection interface interconnects said DC powered device data lines with said power supply data lines.

38. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC power module comprises a battery charger capable of transferring data, having access to data lines of said first plurality of conductors for communicating with said "smart battery;" and

said connection interface interconnects said "smart" battery data lines with said battery charger data lines.

39. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC powered device comprises an internal processor capable of transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device;

said DC power module comprises both a battery charger and a power supply, each capable of transferring data, both having access to data lines of said first and second plurality of conductors for communicating with said "smart' battery and said DC powered device;

said connection interface comprises a switch for muxing both said battery charger data lines and said DC power supply data lines, and

said battery charger accesses said "smart" battery data lines and said DC powered device data lines, to enable said battery charger to communicate with both said "smart" battery and said DC powered device, and further

said DC power supply accesses said "smart" battery and said DC powered device, to communicate with both said "smart" battery and said DC powered device."

40. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC powered device comprises an internal processor capable of transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device;

said DC power module comprises both a battery charger and a power supply, each capable of transferring data;

said battery charger having access to data lines of said first plurality of conductors for communicating with said "smart' battery;

said power supply having access to data lines of said second plurality of conductors for communicating with said DC powered device; and

said connection interface interconnects said battery charger data lines with said "smart" battery data lines, and

said connection interface interconnects said DC power supply data lines with said DC powered device data lines, to enable said battery charger to communicate with said "smart" battery, and said DC power supply to communicate with said DC powered device.

41. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a "smart" battery capable of transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery, and powerlines for charging said "smart" battery;

said DC powered device comprises an internal processor capable of transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device, and powerlines for receiving power;

said DC power module comprises both a battery charger and a power supply, each capable of transferring data;

said battery charger having access to data lines of said first plurality of conductors for communicating with said "smart' battery, and having access to said powerlines for charging said "smart" battery;

said DC power supply having access to data lines of said second plurality of conductors for communicating with said DC powered device, and having access to said powerlines for delivering power to said DC powered device;

said connection interface interconnects said battery charger data lines with said "smart" battery data lines, and interconnects said battery charger powerlines to said "smart" battery charging powerlines; and further

said connection interface interconnects said DC power supply data lines with said DC powered device data lines, and interconnects said DC power supply powerlines to said DC powered device powerlines, and

said battery charger communicates with said "smart" battery while charging said "smart battery", and

said DC power supply communicates with said DC powered device, while delivering power to said DC powered device.

42. (previously presented) The apparatus as claimed in Claim 33, further comprising a resistive element in thermal contact with said DC power source, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts located at said connection interface, permitting monitoring of a change in resistance of said resistive element by said DC power module.

43. (previously presented) The apparatus as claimed in Claim 20, wherein:

said battery is a "smart" battery having a capability of transmitting data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC power module comprises a data processor;

said connection interface provides access to data lines for communicating with said DC power module; and

said connection interface interconnects said "smart" battery processor data lines with DC power module processor data lines.

44. (previously presented) The apparatus as claimed in Claim 22, wherein:

said DC powered device comprises a data processor for transferring data;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device;

said DC power module comprises a capability for transferring data;

said connection interface provides access to data lines for communicating with said DC power module; and

said connection interface includes a jumper connector to interconnect said DC powered device processor data lines with DC power module processor data lines.

45. (previously presented) The apparatus as claimed in Claim 22, wherein:

said battery is a "smart" battery having a capability for transferring data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery; and

said connection interface interconnects said "smart" battery data lines with DC power module processor data lines.

46. (previously presented) The apparatus as claimed in Claim 23, wherein:

said battery is a "smart" battery having a capability for processing data;

said first plurality of conductors of said multi-conductor interface member includes data lines for communicating with said "smart" battery;

said DC powered device comprises an internal data processor;

said second plurality of conductors of said multi-conductor interface member includes data lines for communicating with said DC powered device; and

said connection interface includes a jumper connector for interconnecting said "smart" battery data lines with DC powered device processor data lines.

47. (previously presented) The apparatus as claimed in Claim 32, comprising a resistive element in thermal contact with said "smart' battery, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts accessible to said connection interface, permitting monitoring of a change in resistance of said resistive element by said DC power module.

48. (previously presented) The apparatus as claimed in Claim 32, comprising a resistive element in thermal contact with said DC power module, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts accessible to said connection interface, permitting monitoring of a change in resistance of said resistive element by said "smart" battery.

49. (previously presented) The apparatus as claimed in Claim 32, comprising a resistive element in thermal contact with said battery charger, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts accessible to said connection interface, permitting monitoring of a change in resistance of said resistive element by said "smart" battery.

50. (previously presented) The apparatus as claimed in Claim 32, comprising a resistive element in thermal contact with said battery charger, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts accessible to said connection interface, permitting monitoring of a change in resistance of said resistive element by an external monitoring device.

51. (previously presented) The apparatus as claimed in Claim 32, comprising a resistive element in thermal contact with said DC power module, said resistive element changing in resistance value with a change of temperature and having accessible electrical contacts accessible to said connection interface, permitting monitoring of a change in resistance of said resistive element by said an external monitoring device.

52. (previously presented) The apparatus as claimed in Claim 19, wherein:

said DC power source comprises a battery;

said DC power module comprises a DC power supply;

said DC powered device comprises an internal battery charging circuit;

said multi-conductor member comprises electrical contacts of said first plurality of conductors applied to a major face of an insulating stratum, positioned to electrically mate said electrical contacts of said first plurality of conductors with electrical contacts of said battery;

said multi-conductor member further comprises electrical contacts for said second plurality of conductors applied to an opposing major face of said insulating stratum, positioned to electrically mate electrical contacts of said second plurality of conductors with electrical contacts of said DC powered device;

said multi-conductor member interposed between said battery contacts and said DC powered device contacts electrically isolates said DC powered device internal battery charging circuit from said battery; and

said connection interface interconnects said DC power module to said DC powered device to enable said power supply to provide power to said DC powered device, said DC power supply delivering power to said DC powered device electrical contacts to which said battery is normally electrically coupled.

53. (previously presented) The apparatus as claimed in Claim 19, wherein a tab segment of a multi-conductor interface member is removable, for eliminating a user having to insert a jumpered connector in order to electrically recouple a removable battery DC power source which is normally coupled to, and delivers power to, a DC powered device, said removable tab segment comprised of:

a multi-conductor interface member including a first plurality of conductors electrically connected with said DC power source;

a multi-conductor interface member including a second plurality of conductors electrically connected with said DC powered device,

a multi-conductor interface member including a central insulating medium upon opposing faces of which are positioned electrically-conductive contacts of said first and second plurality of conductors for electrically isolating said DC power source from said DC powered device;

a connection interface for electrically coupling said removable tab to said multi-conductor interface member, providing said multi-conductor interface member access to said first and second plurality of conductors, and

said tab segment being removed, thereby electrically re-coupling said removable battery pack's electrical contacts to said DC powered device's electrical contacts, to now deliver power directly from said battery DC power source to said DC powered device.

54. (previously presented) An apparatus for providing temperature sensing information comprising a resistive element accessible to a DC power source, a DC powered device, a DC power module, and an external monitoring device, wherein said

DC power source is normally coupled to, and delivers DC power source temperature sensing information to said DC powered device, said apparatus further comprising:

a multi-conductor interface member electrically isolating said DC power source from said DC powered device, said multi-conductor interface member including a first plurality of conductors electrically connected with said DC power source, and a second plurality of conductors electrically connected with said DC powered device; and

a connection interface electrically coupled to said multi-conductor interface member and providing electrical contacts accessible to said resistive element, enabling selective interconnection among said DC power source, said DC powered device, said DC power module, and said external monitoring device, to effect said selective access to said resistive element's temperature sensing information.

55. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power source is a battery;

said resistive element is in thermal contact with said battery; and

said resistive element is accessible by said multi-conductor interface member first plurality of conductors, via said connection interface, to said DC power module for the purpose of monitoring said battery's temperature.

56. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power source is a battery;

said DC power module is a battery charger;

said resistive element is in thermal contact with said battery; and

said resistive element is accessible by said multi-conductor interface member first plurality of conductors, via said connection interface, to said battery charger for monitoring said battery's temperature.

57. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power source is a battery;

said DC power module is a DC power supply;

said resistive element is in thermal contact with said battery; and

said resistive element is accessible by said multi-conductor interface member first plurality of conductors, via said connection interface, to said DC power supply for the purpose of monitoring said battery's temperature.

58. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power module is a battery charger;

said resistive element is in thermal contact with said battery charger; and

said resistive element is accessible by said multi-conductor interface member first plurality of conductors, via said connection interface, to said DC powered device for the purpose of monitoring said battery charger's temperature.

59. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power source is a battery;

said resistive element is in thermal contact with said battery; and

said resistive element is accessible, via a jumpered connector electrically coupled to said connection interface, to said DC powered device for enabling monitoring said battery's temperature.

60. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power source is a "smart" battery;

said DC power module is a battery charger capable of transferring data;

said DC powered device includes a processor, normally coupled to said battery, decoupled from said battery by said multi-conductor interface member;

said resistive element is in thermal contact with said battery;

said resistive element is accessible to said battery charger by said multi-conductor interface member first plurality of conductors, for monitoring said battery temperature;

said DC powered device is accessible to said battery charger by said multi-conductor interface member second plurality of conductors, for communicating said temperature-sensing information to said DC powered device; and

said battery charger monitors said battery temperature and delivers information about said monitored battery temperature to said DC powered device, via said connector

interface, for enabling both said DC powered device and said battery charger to monitor said battery's temperature.

61. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power source is a battery;

said DC power module is a battery charger capable of transferring data;

said resistive element is in thermal contact with said battery;

said resistive element is accessible to said battery charger by a first set of conductors of said multi-conductor interface member first plurality of conductors, for monitoring said battery temperature;

said battery is accessible to said battery charger by a second set of conductors of said multi-conductor interface member first plurality of conductors, for charging said battery; and

said battery charger, via said connector interface, permitting monitoring of said battery temperature while charging said battery.

62. The apparatus as claimed in Claim 54, wherein:

said DC power module is a DC power supply capable of transferring data;

said DC powered device includes a processor, normally coupled to said battery, decoupled from said battery by said multi-conductor interface member;

said resistive element is in thermal contact with said DC power supply;

said resistive element is accessible to said DC powered device by a first set of conductors of said multi-conductor interface member second plurality of conductors, for monitoring said DC power supply temperature;

said DC power supply is accessible to said DC powered device by a second set of conductors of said multi-conductor interface member second plurality of conductors, for receiving power from said DC power supply; and

said DC powered device, via said connector interface, enabling monitoring said DC power supply temperature while receiving power from said DC power supply.

63. (previously presented) The apparatus as claimed in Claim 54, wherein:

said DC power source is a battery;

said DC power module is a battery charger capable of transferring data; further

said DC power module includes a DC power supply capable of transferring data;

said DC powered device includes a processor, normally coupled to said battery, decoupled from said battery by said multi-conductor interface member;

said resistive element is in thermal contact with said battery;

said resistive element is accessible to said battery charger by a first set of conductors of said multi-conductor interface member first plurality of conductors, for monitoring said battery temperature;

said battery is accessible to said battery charger by a second set of conductors of said multi-conductor interface member first plurality of conductors, for charging said battery;

said DC power supply is accessible to said DC powered device by said multi-conductor interface member second plurality of conductors, for powering said DC powered device; and

said battery charger, via said connector interface, monitors said battery temperature while charging said battery; and further

said DC power supply enabling power delivery simultaneously to said DC powered device.

64. (previously presented) The apparatus as claimed in Claim 54, wherein:

said resistive element is a flexible resistive ink applied to an insulator medium in a thin continuous layer covering and entire area between two conductors, said resistive ink electrically in contact with an equal portion of each conductor;

said insulator medium electrically isolates said conductors in said multi-conductor interface member from said resistive element.

65. (previously presented) The apparatus as claimed in Claim 54, wherein a flexible apparatus for attaching to surfaces of a multiplicity of DC power sources and DC power modules is comprised of:

a flexible multi-conductor member including a first plurality of power and data conductors for providing access to a "smart" battery pack's power and data contacts; and further including

a second plurality of flexible power and data conductors for providing access to a "smart" DC powered device's power and data contacts, said DC powered device's power and data contacts normally coupled to mating contacts of said "smart" battery for delivering power to said DC powered device, and for transferring data between said "smart" battery and said DC powered device;

said multi-conductor member further including a flexible central insulating medium, upon opposing faces of which are positioned electrically-conductive contacts of said first and second plurality of conductors,

a connection interface for electrically coupling an external DC power module to said multi-conductor member, providing said external DC power module access to said first and second plurality of conductors,

a user interposing said flexible multi-conductor member between said removable "smart" battery pack's contacts and said DC powered device's normally mating contacts, thereby electrically isolating said DC power source's contacts from said DC powered device's contacts, and further

said electrically-conductive contact ends of said first plurality of conductors are electrically coupled to said battery's power and data contacts, and further

said electrically-conductive contact ends of said second plurality of conductors are electrically coupled to said DC powered device's power and data contacts, and further

said connection interface is accessible to an external DC power module for accessing power and data along said first plurality of conductors to said "smart" battery, and along said second plurality of conductors to said DC powered device.

66. (previously presented) The apparatus in claim 65, wherein a flexible apparatus is a label device for being applied by a user to a pre-manufactured removable battery pack, said label printed with an indicia.

67. (previously presented) The apparatus as claimed in Claim 54, comprising:

a first non-conductive medium in contact with said resistive element;

said connection interface comprising a plurality of electro-conductive elements electrically coupled to said resistive element; and

means for attaching said non-conductive medium to at least one of said DC power source and said DC power module.

68. (previously presented) The apparatus as claimed in Claim 54, wherein said attaching means is a low tack adhesive.

69. (previously presented) The apparatus as claimed in Claim 54, further comprising replaceable portions that can be replaced where worn or damaged.

70. (previously presented) The apparatus as claimed in Claim 54, further comprising a printable exterior surface for displaying indicia.

71. (previously presented) The apparatus as claimed in Claim 64, wherein said insulator medium and said resistive element define a single flexible layer, whereby said apparatus is capable of conforming to one or more surfaces of one of said DC power source and said DC power module.

72. (previously presented) The apparatus as claimed in Claim 54, wherein said apparatus is configured to be a product label, applied to the exterior of one of said DC power source and said DC power module for monitoring the temperature of the device to which it is applied.

73. (previously presented) The apparatus as claimed in Claim 68, comprising an interface to a data-enabled DC power source.

74. (previously presented) The apparatus as claimed in Claim 68, wherein:

said apparatus has a reconfigurable geometry, adapted to conform to diverse locations on the device to which it is applied; and

such a geometry includes conforming to the device to which it is applied.

75. (previously presented) The apparatus as claimed in Claim 68, further comprising replaceable portions that can be replaced where worn or damaged.

76. (previously presented) The apparatus as claimed in Claim 68, further comprising a printable exterior surface for displaying indicia.

77. (previously presented) The apparatus as claimed in Claim 68, wherein at least one of said electro-conductive elements is capable of conducting a data signal.

78. (previously presented) The apparatus as claimed in Claim 54, wherein said resistive element is integral to said multi-conductor interface member.

79. (previously presented) An apparatus for being interconnected among a plurality of devices, so as to enable multiple modes of operation of said apparatus, comprising:

a processor at a third device capable of performing one or more intra-device operations;

an interface at a communications-enabled battery source which includes a plurality of conductors at a first connector for electrically coupling to a third device;

said first connector being accessible to a mating connector of the third device while said battery resides within a battery bay of a host device; and

a plurality of conductors at a second connector at the battery for mating with a connector at the host device, enabling a first mode of operation includes the host device receiving at least a power signal from said battery, and a second mode of operation includes the connected third device communicating with said battery.

80. (previously presented) The apparatus as claimed in Claim 79, wherein said host device is capable of communicating with said battery as an additional mode of operation which further includes said third device monitoring said communications by means of a battery monitoring circuit.

81. (previously presented) The apparatus as claimed in Claim 80, wherein a further additional mode of operation includes said third device transferring data signals to said battery in order to control an operation between said battery and its host.

82. (currently amended) An apparatus for enabling multiple operations among a plurality of devices, comprising:

a battery device as a source of power signals accessible at a plurality of conductors directed to a first connector for electrically coupling a third device, and a further plurality of conductors directed to a second connector for electrically coupling a host device;

a user-attached element at the battery for sensing temperature, accessible at one or more conductors of said first connector;

a third device, including:

an A/D converter for acquiring a temperature signal from the sensing element;

a processor accessible to a communications circuit for transferring data signals;

a connector interface having a multiplicity of conductors selectively directed to the first connector of the battery device for transferring power and temperature-sensing signals, and to a data I/O port at the host device for transferring data signals;

a connector in a battery bay of the host device that mates to the second battery connector, for receiving power signals;

~~W~~whereby at least one of said multiple operations includes said A/D converter acquiring a signal from the attached sensing element, which said processor converts to a data value expressing battery temperature before transferring that value as a data signal from the communications circuit to the data port of said host device.

83. (previously presented) The multiple operations claimed in Claim 82, wherein a further operation includes said battery serving as the source of power for the operations of both said third device and host device.

84. (previously presented) The apparatus claimed in Claim 82, wherein a means of transferring said data signals employs Universal Serial Bus communications.

85. (currently amended) An apparatus for enabling multiple operations among a plurality of devices, comprising:

a battery source having a plurality of conductors directed to a connector for electrically coupling at least one of said plurality of devices;

a third device, including:

an A/D converter which has access to the output signals of a battery charger;

a modulator/demodulator for transferring data signals along powered conductors;

a voltage regulator for outputting a power signal along said powered conductors;

a processor accessible to the modulator/demodulator for communicating;

a connector interface having a multiplicity of conductors selectively directed to the battery connector for transferring charging signals, and to a connector at a host device;

said host connector having previously been electrically coupled to the battery as a source of power but, now instead, being electrically coupled to said powered conductors of the connector interface at said third device; and

~~A~~a modulator/demodulator accessible at the powered conductors of the host connector;

~~W~~whereby said multiple operations include said A/D converter acquiring a signal from the charger during battery charging operations, which said processor converts to a data value before transferring that value as a data signal along the voltage-regulated powered conductors that electrically couple the modulator/demodulator of the third device to the modulator/demodulator of the host device.

86. (previously presented) The apparatus as claimed in Claim 85, wherein said power signal along powered conductors does not originate at the voltage regulator but, instead, originates at the battery as a source of power for both said third device and said host device, at any time when said charger is not recharging the battery.

87. (currently amended) An apparatus having multiple modes of communicating among multiple devices, so as to enable a plurality of operations with said devices, comprising:

a battery bay of a host device in which a battery is installed, said battery previously powering the host via a plurality of conductors of a battery connector electrically coupled to a mating host connector but, now electrically uncoupled and, instead, said battery connector being coupled to at least two conductors of a connector at a third device;

said third device further comprised of:

a modulator/demodulator for transferring data signals along powered conductors directed to a host device

a communications-enabled processor accessible to the modulator demodulator and an A/D converter, said processor also capable of performing controller functions;

a power supply for delivering power to the host device along said powered conductors, said power supply capable of having its variable output configured by the processor;

a wireless I/O port configured to transfer data signals to a compatible port at the host device

an in-line adapter interconnected between the third device and the host device along the powered conductors, so that power and data signals from the third device now are received by the adapter instead of the host device;

said adapter further comprising:

a plurality of conductors at a connector for powerlines that electrically couples to the host connector to which said battery connector was previously attached;

a processor accessible by a modulator/demodulator for transferring powerline data to the third device along the powered conductors;

hardware and software for communicating, by means of another protocol than powerline modulation, via a third interface having at least two conductors for electrically coupling the adapter to a data port at the host device; and

a wireless I/O port configured to transfer data signals to a compatible port at either the host device or the third device;

~~W~~whereby at least one of said multiple modes of communications includes the processor at the third device querying said adapter by means of a wireless data link to acquire the host device's power input requirements, which said processor uses to calculate an output voltage for the configurable power supply, which is then confirmed by the A/D converter acquiring a first output signal of the power supply, which is transferred to the processor for comparing to the previously-configured power output value; then this power information is sent as modulated data to the adapter along the powered conductors, where the signal is demodulated and the unmodulated power signal is forwarded along the powerlines to power said host device, where finally said host device uses its wireless data port to broadcast a confirmation of the successful power delivery.

88. (previously presented) The apparatus as claimed in Claim 87, wherein said A/D converter at the third device acquires a power output signal from said battery, which said processor converts to a voltage value for comparing to the power requirements received from said adapter.

89. (previously presented) The apparatus as claimed in Claim 87, wherein said third device is embedded and has its connector interface accessible to a user for attaching a transportable adapter for powering a host device.

90. (previously presented) The apparatus as claimed in Claim 87, wherein each of said wireless data I/O ports is configured to enable both multi-point peer-to-peer wireless connections among said plurality of devices, and further said ports being also configurable for transferring data via a locally-accessible wireless network access point.

91. (previously presented) The apparatus as claimed in Claim 90, wherein said wireless ports use radio frequency communications.

92. (previously presented) The apparatus as claimed in Claim 90, wherein said wireless ports use infrared communications.

93. (currently amended) A system of devices for accessing a data connector interface of a host device, said system comprising:

~~A~~a first connector providing a data interface accessible at a multi-device bay of a host device, said first connector normally accessed by a removable non-battery peripheral device that is user-interchangeable with a battery;

~~A~~a communications-enabled processor and memory of the host device, being accessible only from said first connector;

~~A~~a second connector, also accessible at the battery bay, for electrically coupling a mating first I/O connector of a removable battery source, said battery for powering the host device and, further, said battery-related data not normally being available to said processor and memory from the second connector;

~~S~~said battery source comprised of:

~~A~~a smart battery circuit capable of communicating battery-related data, said data normally only accessible by the host at the second connector;

~~M~~memory and a processor capable of communications, said processor also providing controller functions for manipulating a controllable switch assembly that directs data originating from the battery processor or smart circuit selectively to either:

~~A~~a plurality of conductors of the first I/O connector, for electrically coupling to said first connector of the host, or

~~A~~a plurality of conductors of a second I/O connector for electrically coupling to said second connector of the host;

~~A~~a device emulator element having peripheral-device-specific hardware and software for converting data received from either the battery processor, or

smart circuit, into a protocol and format of said removable peripheral device, so as to be readable by the host memory and processor; and

~~A~~a remote third device electrically coupled to said battery by a plurality of conductors to a connector for mating to a third connector at the battery;

~~W~~whereby data generated at either the battery processor or smart circuit is converted by said device emulator so as to be readable by the host processor at the first connector, as if said data is being generated not by the battery, but instead by said peripheral, thus making battery data, previously not accessible to host memory and processor, now readily available.

94. (currently amended) The system of devices claimed in Claim 93, wherein said remote third device is further comprised of:

~~M~~memory and a communications-enabled processor, said processor also providing controller functions to manipulate a configurable switch assembly that selectively activates a modulator/demodulator for data transfer across said plurality of conductors between the third device and a compatible modulator/demodulator at said smart battery device;

~~W~~whereby said transferred data is available at the battery for further transfer to said host device via either said first or second connector at said battery bay.

95. (currently amended) The system of devices claimed in Claim 93, wherein an in-line adapter device is interposed between said remote third device and said smart battery source so that power and data being transferred across said plurality of conductors are now accessible to the adapter, said adapter device comprised of:

~~M~~memory and a communications-enabled processor, said processor also providing controller functions to manipulate at least one configurable switch assembly that selectively activates one or more modulator/demodulators for data transfer across either said plurality of conductors between the adapter and a compatible modulator/demodulator at said third device, or between the adapter and a compatible modulator/demodulator at said battery;

~~W~~whereby said transferred data is available at the battery for further potential transfer to said host device.

96. (currently amended) A connector apparatus for selectively directing electrical paths, comprised of:

a first connector of a pair of connector blocks having at least one male contact that is split longitudinally along its protruding length so as to have an insulated and an opposing conductive surface sufficiently exposed to be electrically accessible when the pair of the first and second connector blocks are mated; and

said pair of connector blocks being keyed so that the mating of the connector blocks causes insertion of said male contact into an aligned orifice of the second connector block, wherein said male contact engages an opposing pair of female contacts that are electrically coupled to cause an electrical path, each female contact being a spring-loaded conductive beam that, by said engaging, now becomes electrically isolated by a spreading apart of said beams, and said engaging further causes the first female beam to be in contact with the insulated surface of said male contact, while the second female beam is electrically coupled with the conductive surface of said male contact;

~~T~~thereby forming a redirected electrical path.

97. (currently amended) A multi-device connector interface assembly for enabling multiple modes of device operations, comprising:

~~A~~a host device having a plurality of conductors directed to a connector, to which previously was for attaching a mating connector of a battery source used for powering the host;

~~A~~a communications-enabled battery source having a plurality of conductors previously directed to said mating second connector for electrically coupling said battery to said host device but, now, said plurality of battery conductors are instead redirected to a third connector, for attaching to a mating fourth connector at a third device;

~~A~~a third device having a plurality of conductors of said fourth connector directed to one or more of third-device's battery-related elements, comprised of:

~~A~~a processor capable of communicating with a smart circuit at said battery along branching conductors electrically coupled to the conductors of a fifth connector, said processor further capable of control functions;

~~A~~a processor-controllable multi-contact double-throw switch having a default position that directs the plurality of fourth connector's conductors to an equivalent number of conductors of a fifth connector of the third device;

~~A~~a sixth connector at said battery for electrically attaching to said fifth connector of the third device, said sixth connector having a plurality of conductors that are not electrically coupled to any battery elements but, instead, pass through said battery and are electrically attached to said second connector for electrically coupling said battery to said host;

~~W~~whereby said battery source outputs power and data signals along a plurality of conductors that previously were directed to the second connector, to be received by said host at the mating first connector but, now, the signals are redirected to the third connector and transfer via the fourth connector instead to said third device, and further

~~W~~whereby at least one operation of said processor of the third device is to monitor said battery-to-host signals, battery power and data signals is for the processor to manipulate said controllable multi-contact switch to close switch contacts between said conductors of the fourth connector and conductors of the fifth connector, thus allowing said battery power and data signals to be directed back to said battery at its sixth connector, and further

~~W~~whereby said conductors of the sixth connector are directed to battery's second connector, which is electrically coupled to the first connector for the host receiving said signals.

98. (currently amended) A[[n]] system for enabling both independent and simultaneous multiple modes of operation among a plurality of interconnected devices, comprising:

~~A~~a communications-enabled battery source residing in a battery bay of an associated host device for previously communicating with and powering the host device, now electrically uncoupled from the host by retracting a connector at the battery from its mating connector in the battery bay and, instead, mating the battery connector to a first

plurality of electrical contacts of a multi-contact connector, said first plurality of contacts being directed by a first plurality of conductors to battery-related elements at a third device, and further instead, mating the host connector to a second plurality of electrical contacts of the multi-contact connector, said second plurality of contacts being directed by a second plurality of conductors to host-device-related elements at the third device,

~~A~~a third device external to said battery and said host, further comprised of:

memory for storing a look-up table of battery values

~~A~~a processor for communicating via a smart communications circuit, said processor further including control functions directed to:

~~A~~a processor-activated battery charger for delivering a charging signal to said battery, said charger also being capable of communicating with said battery and said processor;

~~A~~a power supply capable of being manipulated by the processor to configure its variable power output signal; and

~~A~~a n A/D converter accessible to both said first and second plurality of conductors for acquiring battery and power-supply information;

~~W~~whereby at least a first independent operation includes the processor directing the battery charger to acquire battery voltage data from said battery, and further

~~W~~whereby at least a second independent operation includes said processor performing one or more calculations based on acquired battery voltage data and the look-up table in memory, the result of said calculations being for a third independent operation of the processor configuring a power output signal of said configurable power supply, so that said configured output is within an acceptable range of power signals received by said host when being powered directly by its associated battery source, and further

~~W~~whereby at least a first a first simultaneous operation is performed as control functions of the processor activate both the battery charger to charge said battery, and also the power supply is activated to concurrently deliver power to said host device.

99. (currently amended) An apparatus for performing multiple modes of operation among a plurality of devices, comprising:

~~A~~an external third device including:

~~A~~a connector interface for electrically coupling one or more of said plurality of devices, comprised of multiple conductors attached to a multi-contact connector;

~~A~~a processor capable of intra-device communications, and further capable of enabling controller functions;

~~A~~a power supply capable of being manipulated by the processor to configure its variable output;

~~A~~a modulator/demodulator for transferring data signals along conductors available to the output of the power supply;

~~A~~a regulator-supplied battery charger;

~~A~~an A/D converter for acquiring device-state signal values for the processor, said A/D having access to at least a battery source at conductors of the multi-contact connector;

~~A~~a data I/O port configured for wireless communications, being configured to enable transferring data via an locally accessible network access point[[.]];

~~A~~a battery source residing in a battery bay of an associated host device, previously for powering said host via a two-conductor connector and now, temporarily, said battery connector is electrically uncoupled from said host and, instead, redirected to the multi-contact connector at the third device;

~~A~~a host device comprised of:

~~A~~a modulator/demodulator for transferring data signals via conductors at the battery-bay connector to which previously the battery was electrically coupled and, now instead, said battery-bay connector is temporarily redirected to the multi-contact connector at the third device, and

~~A~~a data I/O port configured for wireless communications,

~~W~~whereby a first mode of operation includes the A/D converter acquiring at least a first voltage signal from said battery, and further

~~W~~whereby a second mode of operation includes said processor performing one or more calculations based on acquired battery voltage information, the result of said

calculations being for configuring an output of said controllable power supply, so that said output is within the acceptable range of power signals received by said host when being powered directly by its associated battery source.

100. (new) An apparatus for monitoring temperature changes of a power source, said apparatus comprising:

an insulator layer, upon one surface of which is deposited a thin flexible film of thermally-reactive ink;

a means for attaching the non-deposited surface of said insulator layer to the power source;

a plurality of conductors, a first one of which is electrically coupled along part of its length to an accessible edge of said ink film, and a second one of which is electrically coupled along part of its length to an opposing edge of said ink film;

At least a third conductor being capable of carrying at least one of power and/or data signals; and

power flowing from said power source through said first conductor, then across the ink film to the second conductor detects an altered resistive characteristic of said ink as it thermally reacts to changes in temperature at said power source;

whereby said apparatus monitors temperature changes of said power source.

101. (new) The apparatus of claim 100, further comprising a second insulator layer applied over said first layer to form a multi-layered construct which encapsulates said ink deposition.

102. (new) The apparatus of claim 100, wherein said ink is a positive temperature coefficient material.

103. (new) The apparatus of claim 100, wherein said ink film is applied to said insulator layer by a printing process.

104. (new) The apparatus of claim 100, wherein at least one of said plurality of conductors is a conductive non-thermally-reactive ink.

105. (new) The apparatus of claim 100, wherein said insulator layer is a thin printable material that is flexible and substantially capable of conforming to one or more surfaces of a power source.

106. (new) The apparatus of claim 105, wherein said apparatus is configured to be a product label applied to the exterior of said power source.

107. (new) The apparatus of claim 106, further comprising a printable exterior surface for displaying a static indicia.

108. (new) The apparatus of claim 100, further comprising a multi-conductor connector for accessing data at said power source.

109. (new) The apparatus of claim 100, wherein said apparatus has a geometry that is reconfigurable to fit diverse locations of electrical contacts on a battery pack housing.

110. (new) The apparatus of claim 108, further comprising user-replaceable portions for redirecting temperature data and/or power signals.

111. (new) The conforming of claim 105, further including an attaching means comprised of a low-tack adhesive.

112. (new) The apparatus of claim 100, wherein said apparatus transfers temperature-related data signals.

113. (new) The connector element of claim 108, further including a means of inter-connecting a power source and a host device so as to simultaneously and concurrently be independently powered from one or more external peripherals.

114. (new) The apparatus of claim 113, wherein said enabling means functions as an interface for interconnecting at least two of three or more devices, sources, and peripherals.

115. (new) The apparatus of claim 113, further comprising a jumpered terminal connector for reconnecting power and/or data conductors upon disconnecting an attached peripheral.

116. (new) An apparatus for monitoring temperature functions of a power source, said apparatus comprising single non-conductive layer upon which is applied a substantial area of thermally-resistive ink as a continuous film, said area of ink being partitioned into segments by the application of a plurality of conductors, each electrically attached along part of its length to said ink area so as to be parallel to an adjacent conductor, so as to parse out geometric segments of said ink area as independent positive temperature coefficient thermistors;

whereby, upon being attached to a power source, each segment separately monitors the specific surface area of said power source to which it is in contact.

117. (new) An apparatus for monitoring temperature functions of a power source, said apparatus comprising a thin, flexible assembly that is capable of being attached to an accessible surface area of a plurality of power sources, said assembly having sufficient stacked dielectric layers for sandwiching at least one element from the group consisting of a film deposition of a positive temperature coefficient thermistor material, data signal conductors, power signal conductors, and interfaces for attaching said power source to an external peripheral, so that each sandwiched-layer comprises a sub-assembly that is configurable with other such sub-assemblies to perform a plurality of temperature-monitoring functions of said power source;

whereby information as to the temperature of said power source is transferred as data signals to said external peripheral.

Re: Items #3 and 4 of the Office Action — *Claim Rejections Under 35 USC § 112*

Applicant has rewritten the new claims to define the invention more particularly and distinctly so as to overcome the technical rejections raised in the Office Action under 35 U.S.C. § 112, and to more clearly define the invention over the prior art. In rewriting the

claims, no new matter has been added, being completely within the scope of the material set out in the documents.

In the claims submitted herewith, applicant uses the term power "module" in previously submitted claims 19-99. Webster's New Collegiate Dictionary defines "module" as "packaged functional assembly of electronic components for use with other such assemblies." On Page 56, Lines 19-20 of applicant's Specification, it is made clear that a "third device . . .can be a combination battery charger and power supply." Such "third device" functions to provide battery charger energy to a battery or power supply energy to a powered device such as a host device, a function defined in applicant's claim 22, for example. While the terms "third device" or "combination" as expressed on Page 56 are clear and unambiguous in their meaning within the context of applicant's Specification, these terms are not grammatically suitable to broadly describe an electronic assembly that may comprise a battery or a battery charger, or both. Accordingly, applicant has employed the term "module" in the broadest claims defining the substance and/or function of such "third" device (the DC power source and DC powered device being the implied "first" and "second" devices). With this as background explanation, it is earnestly believed that the use of the term "module" does not introduce new matter.

Applicant further responds to Examiner's claim rejections in Items #3 and #4 of the Detailed Action which addresses applicant's claims 9, 14, and 16 as being allegedly indefinite under 35 USC § 112, second paragraph, as follows.

Applicant has, in all new claims submitted herein, been diligent in consistently identifying all references to "battery" where only a battery is intended, as well as being consistent throughout the claims in the use of "power source" where the invention is fully defined without need to limit a "power source" to a "battery." This is in compliance with the Examiner's suggestion and inferred request for consistency, and is intended to eliminate any potential confusion in the use of these terms in the claims.

Applicant has modified all claims with new terms that clearly differentiate the various devices. The following table indicates the terms previously used in the now-abandoned claims, and the new terms used in the redrafted claims submitted herewith:

PREVIOUS CLAIM TERMS	REDRAFTED CLAIM TERMS
"power source"	"DC power source"
"power source"	"DC power module"

In the redrafted claims, "DC power module" generally represents and is identified as a specific device, such as a "battery charger," or "DC power supply." Also, the term "DC power source" generally is qualified as a "battery," or "'smart' battery," as appropriate to the language and meaning of the claim. In the following discussion, the old and new terms are inter-mixed, but the claim language is clear and unambiguous as to which specific devices and power sources are indicated.

As rewritten, the new claims clearly acknowledge that there may be multiple sources of power when considering that a source of power may come from an internal or removable battery, an internal or external battery charger, or an internal or external power supply of any of a number of electrical or electronic devices. The conductors of the multi-conductor interface member are capable of carrying power and/or data signals that route among the electrical or electronic devices connected to it according to virtually any desired routing scheme.

Fig. 6 (Specification pages 55-57), Fig. 7 (Specification page 57-59), and Fig. 8 (Specification pages 67-68), for example, show external and internal conductors and connector interfaces which reroute previous "smart" battery data paths to either (or both) a host device, as well as an external DC power source (as indicated previously, the redrafted claims for clarity differentiate such devices as "battery chargers," "DC power supplies," and "external monitoring devices" as "DC power modules"). Since a "smart" battery, itself, is both a source of both power and data, in certain applications defining which of the three interconnected devices is the active DC power source and/or the active data source may change.

From the Specification (pp. 67-68), the following example illustrates how the connector in applicant's invention allows for multiple device states that can exist among multiple data sources:

1) An external smart battery charger is active and is charging a battery, and data sent from the smart battery (Master) to the external charger (Slave) initiated the charging event. The DC power source is clearly the charger, while the data source is the battery.

2) During the charge process in 1) above, the external charger (now Master) polls the battery's thermistor by sending a request (data) across the connector interface. The DC power source is the charger, while the data source is also the charger.

3) In the process defined in 2) above, when the smart battery responds to the charger's request for battery temperature information, the battery becomes the data source, while the charger remains the source of power.

4) Such temperature-monitoring activity can include the host device (a third data-enabled device), which is connected to both the smart battery and the data-enabled smart charger. The connector interface is configurable to allow data from both the smart battery and the smart charger, if necessary.

5) Since the host device is also data-enabled, it can perform data functions such as providing a user information displayed on a screen about the ongoing charging activity defined in this example (Specification, page 72, lines 10-12).

As can be seen by this example, the interface in new claim 19 is effective to couple power and data among multiple devices. Furthermore, a data source can, depending on device states, be one or more of the multiple devices coupled together by the connector element of applicant's apparatus.

Applicant's invention is configurable in a multiplicity of combinations. In the above-cited example, in a modality wherein an external DC power source (battery charger) communicates data with a smart battery, in order to monitor the battery's temperature, the

data-enabled interface connects the invention's temperature sensor element to the external charger. Further, applicant's multi-functional data interface is capable of creating an additional data connection between the external charger in this example, to the battery's host device (now referenced as a "DC powered device" in the redrafted claims), so that the host device also has access -- through the external charger -- to the same temperature data from the smart battery.

Applicant acknowledges that "DC power source" can involve several elements of the invention. The Specification defines more than one DC power source that is capable of providing data over the claimed "interface." Such data can, as the Examiner correctly indicates, be specific to a "smart" battery. However, the interface can also be directed to a data-enabled DC power source such as an external "smart" battery charger, or to a data-enabled external power supply that delivers power to a host device (now referred to as "DC powered device" in the redrafted claims) associated with a smart battery. Information in applicant's Specification under the heading "Y-Connector," (Specification pp. 55-57) and elsewhere clearly identify other data-enabled DC power sources than a battery.

In further addressing the issue of multiple "DC power sources," the Specification (pp. 56-57) also differentiates the "Y-connector" of Fig. 7, wherein the internal wiring of a battery pack allows a user, by the selection of various mating connectors, to provide interfaces for data that address only a battery, or only an associated data-enabled host device, or both the battery and the host device simultaneously. (As previously indicated, the term "Y-connector" no longer appears in the claims).

This compares to Figs. 6 and 8, wherein an external multi-conductor interface directs data signals to either a data-enabled battery, or to a data-enabled host device associated with a battery (Specification pp. 53, 56-57). In Fig. 7, the intersection of the "Y" wiring is within the battery pack itself, necessitating mating connectors to determine which of the "branches" of the "Y" wiring are to be active at any given time. One branch, as taught in the Specification (pp. 73-74), disables a charger-to-battery connection, so that an external power supply is interfacing only with a host device. The alternative connector does the

opposite, disengaging the host device while providing a path only between an external charger and the battery itself. In this alternative mode, since there is a battery ("DC power source") connected to an external charger ("DC power source"), there are now two "DC power sources" in the circuit.

Should a user elect to attach a plug 203 in Fig. 7 (Specification, pp. 52-56, especially page 59, line 12-15), for example, there would be a data-enabled smart battery charger ("DC power source") connected to a smart battery (aka "DC power source") at connector interface 199a, and simultaneously an external power supply ("DC power source") mated to a connector 199b which provides a data path to bypass the battery itself, and goes directly to the battery's associated host device. In this example, there are three DC power sources connected together. In such a configuration, to define "power source" in claims 22, 26, and 63 as only a battery would not fully capture the multiple-functionality and flexibility of interfaces applicant's invention provides, as these claims define several power-source-type devices interacting simultaneously with each other.

The cited reference to "DC power source" in claim 19, therefore, is believed to more fully define the subject matter of the invention as an apparatus having an interface that can appropriately operate with a "DC power source" that is a data-enabled battery, as well as other data-enabled "DC power sources" external to the battery.

Claim 23 also reflects such a multi-functional power interface as described for data in claim 41. Claims 23 and 41 thus define means for enabling a "DC power source" and a "DC powered device" to simultaneously and concurrently be independently powered from one or more external sources.

As previously suggested, there may be at least two (and as many as three) "DC power sources" described: the host device's battery, as well as external devices such as chargers, power supplies, etc. For example, the power paths indicated in Figs. 6, 7, and 8 (Specification pp. 57-58) enable an external "DC power source" comprising both a battery charger and a power supply to deliver a power signal to a host device, while simultaneously charging a smart battery. These functions are also capable of being

independent of each other through the multi-functional interface of the apparatus (Specification pp. 73-75).

Claims 26 and 39 recite claim limitations involving jumpered connectors for reconfiguring power and data signal lines. The multi-functional connector interface can be reconfigured by a jumper. Fig. 7, and the related Specification (pp. 57-58), identify a simple means of employing various connector blocks 203, 102a and b, and 209. These connector variants configure the circuits in battery pack 217 to accept several external power (and data) sources, such as chargers and/or power supplies. Jumpered connector 209 provides a convenient means of reconfiguring the battery circuits so that the battery can directly power its associated host device.

In summary, applicant believes that there is reasonable basis for the less-specific terms "DC power source," and "DC power module" as used in the claims to describe sources of power. To limit this in the independent claims to "battery" would not fully represent the ability of the invention to provide a data interface to external DC power sources in a way that provides the "simultaneous," "concurrent" and "independent" capabilities of the apparatus.

Items 5-7 of the office action - *Claim Rejections Under 35 USC § 102*

The Examiner indicates that applicant's claims 1, 3, 4, 5, 7-9 and 12-13 under 35 USC § 102(b) as being allegedly anticipated by Cataldi et al [hereinafter "Cataldi"]. Original claims 1, 3, 4, 5, 7-9 and 12-13 are now amended and presented herein as new claims 100, 102, 103, 106-108 and 111-112.

Cataldi's voltmeter is limited to monitoring a power function (voltage, or fuel gauge/capacity) of a single battery cell (Fig. 3, Col. 3, lines 28-33). As such, Cataldi is of interest only as to new independent claim 100, 116 and 117 and claims dependent thereon.

Claim 117 recites a thermally-reactive temperature sensing element in combination with a specific connection interface for attaching said power source to an external peripheral

for transferring data signals thereto. Neither Cataldi nor Friel discloses, or even suggests, a combination thermally-reactive element and a unique interconnection interface for routing data to various connected electrical or electronic peripheral devices.

Claims 100 and 116 recite a single non-conductive layer upon which is applied a continuous film of thermally-reactive ink over a substantial area and having a specific geometric configuration (parallelogram). The recited use of parallel conductors between which is applied an overall wide coverage of ink clearly does not fit the classic sinusoidal resistive element of Friel, nor the narrow tapered ink area of Cataldi.

A further illustration of how applicant's thermally-resistive element differentiates itself from Friel and Cataldi is shown in Fig. 5A and B, as related to claims 100 and 116. Such area of ink is partitioned into segments by the application of a plurality of conductors, each segment of the area of ink defining an independent thermistor electrically coupled to one of the plurality of conductors. At least one of the conductors also is electrically coupled to an adjacent segment of the ink. Such partitioning of an area of continuous thermally-resistive ink, partitioning of such area, and coupling of at least one conductive element to an adjacent ink segment are features of applicant's invention totally lacking in the teaching of Cataldi and Friel.

The Office Action specifically indicates that Cataldi teaches a label layer that attaches to a battery housing by means of an adhesive layer. Applicant's new dependent claim 106 narrowly limits its configuration as a "product label," and dependent claim 111 narrowly defines a "low-tack adhesive."

As to the color indicator layer with a graphic scale of Cataladi, new dependent claim 107 recites a "static indicia," while Cataldi's indicator layer changes color as the temperature being monitored varies.

Accordingly, since neither Cataldi and Friel, nor their combination, teach all of the elements of applicant's claims, they cannot be considered as anticipating applicant's claimed invention under 35 USC § 102(b), and it is respectfully requested that claim rejections under this section of the statute be withdrawn.

Re: Items #8-10 of the Office Action — *Claim Rejections Under 35 USC § 103*

Paragraph 9 of the Detailed Action addresses, under 35 USC § 103, applicant's claim 2 in reference to both Cataldi, and SU 0593085 [hereinafter "SU"]. Original claim 2 has been amended and is herein submitted as new dependent claim 101.

Applicant discredits Cataldi as a valid reference for the same reasons stated above in response to the Examiner's grounds for rejection expressed in Item 6 of the office action. Combining SU, another reference of prior art dealing solely with non-conductive layers, thermistors, and conductive electrodes, adds nothing to Cataldi toward suggesting that applicant's invention, as claimed in the new claims submitted herein, is made obvious. That is SU lacks the same claimed elements as Cataldi and Friel and, therefore, is ineffective to reject applicant's new claims under 35 USC 103(a).

Likewise, Burns et al. is concerned solely with a thermally responsive element and the arguments presented above as to the ineffectiveness of Cataldi, Friel, and SU apply equally as to Burns, *et al.* Burns, *et al.* also teaches a serpentine trace "on one layer of a flexible circuit board" (col. 3, line 23). Applicant's continuous overall ink coverage over a wide area, between two parallel conductors (i.e., generically, a parallelogram) in claims 100, 116 and 117, differentiates from the cited prior art.

Moreover, since both Cataldi and Burns teach only multi-layered devices, the "single non-conductive layer" claimed by applicant in new claim 116 (likewise for claim 100) could no longer be achieved by one skilled in the art when combining Cataldi and Burns. In this light, it is respectfully requested that all grounds for rejection under 35 USC 103(a) be withdrawn.

All subclaims in the new set of claims submitted herewith are allowable at least for being dependent upon allowable prior claims.

The amended claims herein add no new matter, and are completely within the scope of the material set out in the documents.

Re: Item #11 of the Office Action — *Prior Art of Record*

The prior art made of record and not relied upon have been reviewed and found to be no more pertinent than the references specifically applied by the Examiner.